

WHAT IS CLAIMED IS:

1. An image processing apparatus comprising:  
display means for displaying a moving image on  
the basis of input image data;  
5 designation means for designating a partial  
region in a display screen of said display means; and  
encoding means for encoding the image data,  
wherein said display means displays a still image  
of the moving image during designation by said  
10 designation means, and  
said encoding means encodes the image data with  
an image included in the region designated by said  
designation means of the moving image displayed by said  
display means being decodable to have higher image  
15 quality than an image of a non-designated region.
2. An image processing apparatus comprising:  
display means for displaying a moving image on  
the basis of input image data;  
designation means for designating an object  
20 included in the moving image displayed by said display  
means; and  
encoding means for encoding the image data,  
wherein said display means displays a still image  
of the moving image during designation by said  
25 designation means, and  
said encoding means encodes the image data with  
an image indicating the object designated by said

designation means of the moving image displayed by said display means being decodable to have higher image quality than an image of a non-designated portion.

3. An image processing apparatus comprising:

5 display means for displaying a moving image on the basis of input image data;

designation means for designating a partial region in a display screen of said display means; and

encoding means for encoding the image data,

10 wherein said display means displays a still image of the moving image during designation by said designation means,

said encoding means comprises:

means for generating transform coefficients by

15 computing discrete wavelet transforms of the image data;

means for generating quantization indices by quantizing the transform coefficients; and

20 means for generating encoded data by decomposing the quantization indices into bit planes, and executing arithmetic coding for the respective bit planes, and

said encoding means shifts up the quantization indices corresponding to an image included in the region designated by said designation means of the moving image displayed by said display means by a  
25 predetermined number of bits.

4. An image processing apparatus comprising:

display means for displaying a moving image on  
the basis of input image data;

designation means for designating an object  
included in the moving image displayed by said display  
5 means; and

encoding means for encoding the image data,  
wherein said display means displays a still image  
of the moving image during designation by said  
designation means,

10 said encoding means comprises:

means for generating transform coefficients by  
computing discrete wavelet transforms of the image  
data;

means for generating quantization indices by  
15 quantizing the transform coefficients; and

means for generating encoded data by decomposing  
the quantization indices into bit planes, and executing  
arithmetic coding for the respective bit planes, and

said encoding means shifts up the quantization  
20 indices corresponding to an image indicating the object  
designated by said designation means of the moving  
image displayed by said display means by a  
predetermined number of bits.

5. The apparatus according to claim 1, wherein said  
25 display means simultaneously displays the moving image  
and the still image of the moving image during  
designation by said designation means.

6. The apparatus according to claim 2, wherein said display means simultaneously displays the moving image and the still image of the moving image during designation by said designation means.

5 7. The apparatus according to claim 3, wherein said display means simultaneously displays the moving image and the still image of the moving image during designation by said designation means.

8. The apparatus according to claim 4, wherein said  
10 display means simultaneously displays the moving image and the still image of the moving image during designation by said designation means.

9. The apparatus according to claim 1, further comprising means for saving the encoded data generated  
15 by said encoding means.

10. The apparatus according to claim 2, further comprising means for saving the encoded data generated by said encoding means.

11. The apparatus according to claim 3, further  
20 comprising means for saving the encoded data generated by said encoding means.

12. The apparatus according to claim 4, further comprising means for saving the encoded data generated by said encoding means.

25 13. The apparatus according to claim 1, further comprising image sensing means for generating the image data by sensing an image.

14. The apparatus according to claim 2, further comprising image sensing means for generating the image data by sensing an image.

15. The apparatus according to claim 3, further comprising image sensing means for generating the image data by sensing an image.

16. The apparatus according to claim 4, further comprising image sensing means for generating the image data by sensing an image.

17. The apparatus according to claim 1, wherein the image data is image data recorded in a recording medium.

18. The apparatus according to claim 2, wherein the image data is image data recorded in a recording medium.

19. The apparatus according to claim 3, wherein the image data is image data recorded in a recording medium.

20. The apparatus according to claim 4, wherein the image data is image data recorded in a recording medium.

21. A digital camera comprising:

image sensing means for generating image data by sensing an image;

display means for displaying a moving image on the basis of the image data;

designation means for designating a partial region in a display screen of said display means;

encoding means for encoding the image data; and means for saving the encoded data,

wherein said display means displays a still image of the moving image during designation by said designation means, and

said encoding means encodes the image data with  
5 an image included in the region designated by said designation means of the moving image displayed by said display means being decodable to have higher image quality than an image of a non-designated region.

22. A digital camera comprising:

10 image sensing means for generating image data by sensing an image;

display means for displaying a moving image on the basis of the image data;

designation means for designating an object  
15 included in the moving image displayed by said display means;

encoding means for encoding the image data; and  
means for saving the encoded data,

wherein said display means displays a still image  
20 of the moving image during designation by said designation means, and

said encoding means encodes the image data with an image indicating the object designated by said designation means of the moving image displayed by said  
25 display means being decodable to have higher image quality than an image of a non-designated portion.

23. A digital camera comprising:

image sensing means for generating image data by sensing an image;

display means for displaying a moving image on the basis of the image data;

5 designation means for designating a partial region in a display screen of said display means;

encoding means for encoding the image data; and means for saving the encoded data,

wherein said display means displays a still image  
10 of the moving image during designation by said designation means,

said encoding means comprises:

means for generating transform coefficients by computing discrete wavelet transforms of the image  
15 data;

means for generating quantization indices by quantizing the transform coefficients; and

means for generating encoded data by decomposing the quantization indices into bit planes, and executing  
20 arithmetic coding for the respective bit planes, and

said encoding means shifts up the quantization indices corresponding to an image included in the region designated by said designation means of the moving image displayed by said display means by a  
25 predetermined number of bits.

24. A digital camera comprising:

image sensing means for generating image data by sensing an image;

display means for displaying a moving image on the basis of the image data;

5 designation means for designating an object included in the moving image displayed by said display means;

encoding means for encoding the image data; and means for saving the encoded data,

10 wherein said display means displays a still image of the moving image during designation by said designation means,

said encoding means comprises:

means for generating transform coefficients by  
15 computing discrete wavelet transforms of the image data;

means for generating quantization indices by quantizing the transform coefficients; and

means for generating encoded data by decomposing  
20 the quantization indices into bit planes, and executing arithmetic coding for the respective bit planes, and

said encoding means shifts up the quantization indices corresponding to an image indicating the object designated by said designation means of the moving  
25 image displayed by said display means by a predetermined number of bits.

25. An image processing method comprising:



the display step of displaying a moving image on the basis of input image data;

the designation step of designating a partial region in a display screen in the display step; and

5 the encoding step of encoding the image data, wherein the display step includes the step of displaying a still image of the moving image during designation in the designation step, and

10 the encoding step includes the step of encoding the image data with an image included in the region designated in the designation step of the moving image displayed in the display step being decodable to have higher image quality than an image of a non-designated region.

15 26. An image processing method comprising:

the display step of displaying a moving image on the basis of input image data;

20 the designation step of designating an object included in the moving image displayed in the display step; and

the encoding step of encoding the image data, wherein the display step includes the step of displaying a still image of the moving image during designation in the designation step, and

25 the encoding step includes the step of encoding the image data with an image indicating the object designated in the designation step of the moving image

displayed by the display step being decodable to have higher image quality than an image of a non-designated portion.

27. An image processing method comprising:

5 the display step of displaying a moving image on the basis of input image data;

the designation step of designating a partial region in a display screen in the display step; and

10 the encoding step of encoding the image data, wherein the display step includes the step of displaying a still image of the moving image during designation in the designation step,

the encoding step comprises:

15 the step of generating transform coefficients by computing discrete wavelet transforms of the image data;

the step of generating quantization indices by quantizing the transform coefficients; and

20 the step of generating encoded data by decomposing the quantization indices into bit planes, and executing arithmetic coding for the respective bit planes, and

25 the encoding step includes the step of shifting up the quantization indices corresponding to an image included in the region designated in the designation step of the moving image displayed by the display step by a predetermined number of bits.

28. An image processing method comprising:

the display step of displaying a moving image on the basis of input image data;

the designation step of designating an object  
5 included in the moving image displayed in the display step; and

the encoding step of encoding the image data,  
wherein the display step includes the step of  
displaying a still image of the moving image during  
10 designation in the designation step,

the encoding step comprises:

the step of generating transform coefficients by  
computing discrete wavelet transforms of the image  
data;

15 the step of generating quantization indices by  
quantizing the transform coefficients; and

the step of generating encoded data by  
decomposing the quantization indices into bit planes,  
and executing arithmetic coding for the respective bit  
20 planes, and

the encoding step includes the step of shifting  
up the quantization indices corresponding to an image  
indicating the object designated in the designation  
step of the moving image displayed by the display step  
25 by a predetermined number of bits.

29. A program for making a computer function as:

display means for displaying a moving image on  
the basis of input image data;

designation means for designating a partial  
region in a display screen of said display means; and

5        encoding means for encoding the image data,  
         wherein said display means displays a still image  
of the moving image during designation by said  
designation means, and

         said encoding means encodes the image data with  
10    an image included in the region designated by said  
designation means of the moving image displayed by said  
display means being decodable to have higher image  
quality than an image of a non-designated region.

30.    A program for making a computer function as:

15        display means for displaying a moving image on  
the basis of input image data;

         designation means for designating an object  
included in the moving image displayed by said display  
means; and

20        encoding means for encoding the image data,  
         wherein said display means displays a still image  
of the moving image during designation by said  
designation means, and

         said encoding means encodes the image data with  
25    an image indicating the object designated by said  
designation means of the moving image displayed by said

display means being decodable to have higher image quality than an image of a non-designated portion.

31. A program for making a computer function as:

display means for displaying a moving image on  
5 the basis of input image data;  
designation means for designating a partial region in a display screen of said display means; and  
encoding means for encoding the image data,  
wherein said display means displays a still image  
10 of the moving image during designation by said designation means,

said encoding means comprises:

means for generating transform coefficients by computing discrete wavelet transforms of the image  
15 data;

means for generating quantization indices by quantizing the transform coefficients; and

means for generating encoded data by decomposing the quantization indices into bit planes, and executing  
20 arithmetic coding for the respective bit planes, and

said encoding means shifts up the quantization indices corresponding to an image included in the region designated by said designation means of the moving image displayed by said display means by a  
25 predetermined number of bits.

32. A program for making a computer function as:

display means for displaying a moving image on  
the basis of input image data;

designation means for designating an object  
included in the moving image displayed by said display

5 means; and

encoding means for encoding the image data,

wherein said display means displays a still image  
of the moving image during designation by said  
designation means,

10 said encoding means comprises:

means for generating transform coefficients by  
computing discrete wavelet transforms of the image  
data;

means for generating quantization indices by  
15 quantizing the transform coefficients; and

means for generating encoded data by decomposing  
the quantization indices into bit planes, and executing  
arithmetic coding for the respective bit planes, and

said encoding means shifts up the quantization  
20 indices corresponding to an image indicating the object  
designated by said designation means of the moving  
image displayed by said display means by a  
predetermined number of bits.

33. An image processing apparatus comprising:

25 display means for displaying a moving image on  
the basis of input image data;

designation means for designating a partial region in a display screen of said display means;

encoding means for generating encoded data by encoding the image data;

5 storage means for storing the encoded data; and  
decoding means for decoding the encoded data stored in said storage means,

wherein said display means displays a still image of the moving image during designation by said  
10 designation means,

said encoding means encodes the image data with an image included in the region designated by said designation means of the moving image displayed by said display means being decodable to have higher image  
15 quality than an image of a non-designated region,

said decoding means decodes encoded data at least from the beginning to the end of designation of the region by said designation means of the encoded data stored in said storage means, and

20 said encoding means re-encodes the decoded image data with an image corresponding to the region of an image that corresponds to the image data decoded by said decoding means being decodable to have higher image quality than an image of the non-designated  
25 region.

34. An image processing apparatus comprising:

display means for displaying a moving image on  
the basis of input image data;

designation means for designating an object  
included in the moving image displayed by said display  
5 means;

encoding means for generating encoded data by  
encoding the image data;

storage means for storing the encoded data; and  
decoding means for decoding the encoded data  
10 stored in said storage means,

wherein said display means displays a still image  
of the moving image during designation by said  
designation means,

said encoding means encodes the image data with  
15 an image indicating the object designated by said  
designation means of the moving image displayed by said  
display means being decodable to have higher image  
quality than an image of a non-designated portion,

said decoding means decodes encoded data at least  
20 from the beginning to the end of designation of the  
object by said designation means of the encoded data  
stored in said storage means, and

said encoding means re-encodes the decoded image  
data with an image corresponding to the object of an  
25 image that corresponds to the image data decoded by  
said decoding means being decodable to have higher



image quality than an image of the non-designated region.

35. An image processing method comprising:

the display step of displaying a moving image on  
5 the basis of input image data;

the designation step of designating a partial region in a display screen in the display step;

the encoding step of generating encoded data by encoding the image data;

10 the storage step of storing the encoded data; and

the decoding step of decoding the encoded data stored in the storage step,

wherein the display step includes the step of displaying a still image of the moving image during  
15 designation in the designation step,

the encoding step includes the step of encoding the image data with an image included in the region designated in the designation step of the moving image displayed in the display step being decodable to have  
20 higher image quality than an image of a non-designated region,

the decoding step includes the step of decoding encoded data at least from the beginning to the end of designation of the region in the designation step of  
25 the encoded data stored in the storage step, and

the encoding step includes the step of re-encoding the decoded image data with an image

corresponding to the region of an image that corresponds to the image data decoded in the decoding step being decodable to have higher image quality than an image of the non-designated region.

5 36. An image processing method comprising:

the display step of displaying a moving image on the basis of input image data;

the designation step of designating an object included in the moving image displayed in the display  
10 step;

the encoding step of generating encoded data by encoding the image data;

the storage step of storing the encoded data; and

the decoding step of decoding the encoded data  
15 stored in the storage step,

wherein the display step includes the step of displaying a still image of the moving image during designation in the designation step,

the encoding step includes the step of encoding  
20 the image data with an image indicating the object designated in the designation step of the moving image displayed in the display step being decodable to have higher image quality than an image of a non-designated portion,

25 the decoding step includes the step of decoding encoded data at least from the beginning to the end of

designation of the object in the designation step of  
the encoded data stored in the storage step, and

the encoding step includes the step of  
re-encoding the decoded image data with an image  
5 corresponding to the object of an image that  
corresponds to the image data decoded in the decoding  
step being decodable to have higher image quality than  
an image of the non-designated region.

37. A program for making a computer function as:

10 display means for displaying a moving image on  
the basis of input image data;

designation means for designating a partial  
region in a display screen of said display means;

encoding means for generating encoded data by  
15 encoding the image data; and

storage means for storing the encoded data; and

decoding means for decoding the encoded data  
stored in said storage means,

wherein said display means displays a still image  
20 of the moving image during designation by said  
designation means,

said encoding means encodes the image data with  
an image included in the region designated by said  
designation means of the moving image displayed by said  
25 display means being decodable to have higher image  
quality than an image of a non-designated region,

said decoding means decodes encoded data at least from the beginning to the end of designation of the region by said designation means of the encoded data stored in said storage means, and

5        said encoding means re-encodes the decoded image data with an image corresponding to the region of an image that corresponds to the image data decoded by said decoding means being decodable to have higher image quality than an image of the non-designated  
10    region.

38.    A program for making a computer function as:

      display means for displaying a moving image on the basis of input image data;

      designation means for designating an object  
15    included in the moving image displayed by said display means;

      encoding means for generating encoded data by encoding the image data;

      storage means for storing the encode data; and  
20    decoding means for decoding the encoded data stored in said storage means,

      wherein said display means displays a still image of the moving image during designation by said designation means,

25        said encoding means encodes the image data with an image indicating the object designated by said designation means of the moving image displayed by said

display means being decodable to have higher image  
quality than an image of a non-designated portion,

said decoding means decodes encoded data at least  
from the beginning to the end of designation of the  
5 object by said designation means of the encoded data  
stored in said storage means, and

said encoding means re-encodes the decoded image  
data with an image corresponding to the object of an  
image that corresponds to the image data decoded by  
10 said decoding means being decodable to have higher  
image quality than an image of the non-designated  
region.